

ATOMIC ENERGY *newsletter*[®]

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

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Controlling interest in Nuclear Metals, Inc., has now been acquired by Textron, Inc., diversified industrial organization. Jerome Ottmar, a Textron vice president, said at the company's recent shareholders' meeting in New York that Textron has arranged to buy 80% of Nuclear's stock from Memorial Drive Trust, a profit-sharing employee retirement fund set up by Arthur D. Little, Inc. Royal Little, Textron chairman, said the transaction was "perhaps 1% of our total assets". With Textron's total assets Dec. 31, 1958 totaling \$187,637,763 this would put the purchase in the \$1,800,000 to \$1,900,000 range. (Other BUSINESS NEWS, p. 2 this LETTER.)

Basic Atomics, Inc., New York, has filed with the Securities & Exchange Commission registration statement covering 444,246 common shares which will be offered on the over-the-counter market at the prevailing market price. No proceeds will go to the company; shares are those of some 42 selling stockholders. (Texas Gulf Sulphur has taken five year option from Basic Atomics on lithium mining property in North Carolina. A five year option was also given TGS on patent rights to a process to recover lithium from spodumene-bearing ores. Plans of TGS are to explore the property and investigate the new recovery process.) (Other FINANCIAL NEWS, p. 5 this LETTER.)

Bids have now been asked by the USAEC's Idaho Operations office, Idaho Falls, for construction of a sodium-boiler plant, fuel cycle facility, utilities and other facilities in connection with the Experimental Breeder Reactor No. 2 (EBR-II) at the national reactor testing station near Idaho Falls. Covered by bid invitation no. AT(10-1)-1002, the estimated cost range of the work is \$2,500,000 to \$3,000,000. The contractor will also install about \$3,000,000 worth of government-furnished equipment. The sodium-boiler plant and the fuel cycle facility make up the major construction work involved in this job. The sodium-boiler plant will house the heat exchanger and the pumping, storage and control equipment of the sodium system; it will be built of reinforced concrete. The fuel cycle facility, to be used for disassembly, reprocessing and reassembling of fuel elements, will have structural steel framework, steel roof deck, and insulated aluminum siding. (Other BIDS ASKED, CONTRACTS AWARDED, p. 3 this LETTER.)

Nuclear fuel elements, radioactive materials, and other aspects of nuclear work will be covered at the national meeting April 5-10, 1959 in Boston, Mass., of the American Chemical Society. Under the ACS's nuclear technology subdivision, a symposium on preparation and recycle of material for nuclear fuels will hear some fifteen papers. A symposium on reprocessing of irradiated fuels by aqueous methods will hear some seventeen papers; by pyrometallurgical methods some seven papers; and by volatility and pyrometallurgical methods some nine papers. Seven papers will also be presented at a symposium on chemical considerations in circulating fuel nuclear reactors. There will also be symposia on the chemistry of heavy elements and on properties and applications of radioactive material.

ATOMIC ENERGY BUSINESS NEWS...

SUBMARINE HULL MODIFIED FOR NUCLEAR PLANT OF IMPROVED DESIGN:- Determination of British officials that their first nuclear propelled submarine Dreadnought should have nuclear propulsion plant of best available design has resulted in modification of design of Dreadnought hull to take Skipjack-class nuclear plant rather than plant of earlier U. S. nuclear submarines. Negotiations between U. S. and Britain, begun June 1958, have now resulted in agreement between Westinghouse Electric Corp., and Rolls-Royce, Ltd., under which complete nuclear propulsion plant similar to that Westinghouse supplied for Skipjack, will be furnished for Dreadnought. Full design and manufacturing details of the machinery; training; and safety information, will also be made available by Westinghouse to Rolls-Royce, Rolls-Royce and Associates, and the British Admiralty. Vickers-Armstrong, who are building the Dreadnought, and installing the propulsion machinery, will get information and other help from Electric Boat division of General Dynamics Corp., who built the Skipjack hull. (Skipjack returned to her berth at Groton, Conn., last week after two days of sea trials during which she attained the highest speed of any U. S. submarine. Launched May 26, her speed is "in excess of 20 knots". Vice Admiral Hyman G. Rickover, chief of the USAEC's naval reactor branch said he was very much pleased with the trials.)

MANUFACTURING AGREEMENT MADE:- Exclusive manufacturing rights in Britain have been given David Brown Jackson division (one of the David Brown group) by Knapp Mills, Inc., New York, for a patented form of nuclear radiation shielding controlled by Knapp as well as for a variety of other Knapp shielding techniques.

ATOMIC ENERGY PATENT DIGEST...

ISSUED March 3, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Apparatus for the comparison of sources of radiation. John A. Victoreen, inventor. No. 2,876,360 issued to inventor of record. (2) Compensating cam and spring balance for x-ray devices. A. J. Foderaro, inventor. No. 2,876,362 assigned to Picker X-Ray Corp., Waite Manufacturing Division, Inc., Cleveland, Ohio. (3) Radiation projector and charge handling means therefor. G. R. Forrer, J. F. Klein, inventors. No. 2,876,363 assigned to The Babcock & Wilcox Co., New York, N.Y. (4) Nuclear electret battery. A. Thomas, inventor. No. 2,876,368 assigned to Tracerlab, Inc., Waltham, Mass.

ISSUED March 10, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Liquid level indicator. A. C. Weigel, J. L. Menson, inventors. No. 2,877,352 assigned to Combustion Engineering Inc., New York, N.Y. (2) Radiation tracker for aiming at center or centroid of multiple targets. A. F. Fairbanks, C. M. Wolfe, inventors. No. 2,877,354 assigned to North American Aviation, Inc.

ISSUED March 10, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Uranium separation process. W. M. McVey, W. H. Reas, inventors. No. 2,877,087 assigned to USAEC. (2) Method and apparatus for making uranium-hydride compacts. W. W. Wellborn, J. R. Armstrong, inventors. No. 2,877,088 assigned to USAEC. (3) Elution of uranium from resin. D. C. McLean, inventor. No. 2,877,089 assigned to USAEC. (4) Process using bismuth phosphate as a carrier precipitate for fission products and plutonium values. T. G. Finzel, inventor. No. 2,877,090 assigned to USAEC. (5) Dehydration of deuterium oxide slurries. C. F. Hiskey, inventor. No. 2,877,091 assigned to USAEC. (6) Coordination compound-solvent extraction process for uranium recovery. W. H. Reas, inventor. No. 2,877,092 assigned to USAEC. (7) Adsorption method for separating metal cations. E. R. Tompkins, G. W. Parker, inventors. No. 2,877,093 assigned to USAEC. (8) Adsorption method for separating metal cations. J. X. Khym, inventor. No. 2,877,094 assigned to USAEC. (9) Centrifugal separators. C. Skarstrom, inventor. No. 2,876,949 assigned to USAEC. (10) Brake device. T. J. O'Donnell, inventor. No. 2,876,867 assigned to USAEC. (11) Process for separating uranium fission products. F. H. Spedding, T. A. Butler, inventors. No. 2,877,109 assigned to USAEC. (12) Method and coating composition for protecting and decontaminating surfaces. D. C. Overholt, M. D. Peterson, inventors. No. 2,877,131 assigned to USAEC. (13) Method of hot rolling uranium metal. A. R. Kaufmann, inventor. No. 2,877,149 assigned to USAEC. (14) Support device for use in a nuclear reactor. F. Geoffrey, E. Long, inventors. No. 2,877,170 assigned to USAEC. (15) Means for shielding reactors. M. Burton, L. T. McClinton, inventors. No. 2,877,171 assigned to USAEC. (16) Recovery of uranium values. K. B. Brown, D. J. Crouse, J. G. Moore, inventors. No. 2,877,250 assigned to USAEC. (17) Electric contact means. J. W. Grear, inventor. No. 2,877,314 assigned to USAEC.

ATOMIC ENERGY CONTRACT NEWS...

BIDS ASKED:- Proposals have been asked by the USAEC from industrial firms for performance under a cost-type contract of engineering development work to select an advanced reactor design using nuclear superheated steam. The Commission believes that the use of nuclear superheated steam in a reactor may make possible reductions in capital and fuel costs of nuclear power plants. Deadline for proposals is April 20, 1959; inquiries should be made to Chairman, Selection Board for Nuclear Superheat Program, USAEC, P. O. Box 59, Lemont, Ill.

CONTRACTS AWARDED:- Peter Kiewit Sons' Co., Omaha, Nebraska, has received USAEC contract for construction of the nuclear portion of the Hallam nuclear power facility, Hallam, Neb. Estimated cost of the work under this contract is \$9 million. (The Hallam facility is being constructed under a cooperative arrangement between the Commission and the Consumers Public Power District of Nebraska; it is to produce 75,000 net kw. of electricity for Consumers' system. Atomics International is handling nuclear design and procurement of major reactor components, while Bechtel Corp., San Francisco, is architect-engineer for the plant. Plant design is largely derived from the sodium reactor experiment being operated by Atomics International at Santa Susana, Calif. Cost of the reactor portion of the plant is estimated to be about \$29,000,000 of which Consumers is providing \$5,220,000 plus site and turbogenerator portion.)

Research and development contract in amount of \$50,000 has been given by the USAEC to Goodyear Tire & Rubber Co., to develop isotope dating technique for use in rubber and other industries where service and storage age of products are important. Goodyear said it will investigate representative pairs of selected isotopes so that one isotope serves as a standard against which to measure the other and thus determine age. Best pairs of isotopes will be selected to cover a range of age determinations of from several weeks to 50 or 100 years for various products.

Two related contracts have been received by Controls for Radiation, Inc., Cambridge, Mass., from the Cambridge Air Force research center. One contract involves radioactivity analysis of several hundred environmental samples of rain and air particulates for nuclear fallout. These are samples collected on a world-wide basis, and provide information on distribution of radioactivity released into the atmosphere. The second contract covers research and development for extending and improving low-level radioactivity analysis techniques and procedures.

NEW BOOKS & OTHER PUBLICATIONS...

Gas-Cooled Power Reactors. Papers presented at a joint Government-industry meeting at Oak Ridge National Laboratory, Oct. 21-22, 1958. Twenty-two reports are covered. No. TID-7564. 376 pages. (\$3.50)..... Effects of High-Energy, High-Intensity Electromagnetic Radiation on Organic Liquids. Report of an Air Force project to obtain background information for the design of hydraulic fluids and lubricants for nuclear-propelled aircraft; work was done at Stanford Research Institute. No. PB-131936. 55 pages. (\$1.50) --Office of Technical Services, Wash. 25, D.C.

Proceedings of the 1958 Accelerator Conference. Twenty papers presented at this Conference, held Oct. 14-16, Cambridge, Mass., under sponsorship of High Voltage Engineering Corp. --High Voltage Engineering Corp., Burlington, Mass.

NOTES:- New group of engineering drawings filmed at Oak Ridge by Cooper-Trent Corp., is in this firm's recently issued list, available from the company at 2701 Wilson Blvd., Arlington 1, Va.

Publications of the U.K. Atomic Energy Authority recently made available for public use, as compiled by the Library, Atomic Energy Research Establishment, Harwell, are in List No. 39-February 1959. It may be obtained from the Librarian at Harwell, England.

A study titled "Federal and State Responsibilities for Radiation Protection; The Need for Federal Legislation", the result of work at the University of Michigan Law School's atomic energy research project, has been prepared by W. H. Berman and L. M. Hydeman, co-directors of the project. It will be published in full by the Joint Congressional Committee on Atomic Energy as background material for hearings the Committee plans this Spring.

MANUFACTURERS' LITERATURE:- New folder describes radiochemical laboratory fabricated of stainless steel which the USAEC exhibited at the Geneva Conference last September. Brochure, which includes detailed drawings of each item may be obtained from S. Blickman, Inc., Weehawken, N.J., who supplied the stainless steel equipment.

PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- Model CP-3 portable survey meter measures and distinguishes between alpha, beta and gamma radiation, and with three full scale ranges of 50,500, and 5000 mr/hr provides coverage of radiation levels found in most laboratories. The instrument has circuit improvements said to extend battery life to more than 800 operating hours. Unique features are the built-in alpha and beta absorption filters. Undesired radiations are rejected by swinging the proper absorber into place in the absorber bracket mounted on front of the ionization chamber. --Technical Associates, 140 W. Providencia Ave., Burbank, Calif.

Model RLA-6A is a moderate-speed, dual-channel coincidence-anticoincidence analyzer. Principal design feature of this model is its 0.1 microsecond resolving time capability. This is of marked utility when the specific activities of the samples under analysis are high. It is furnished as a sub-chassis mount, and is manufactured by this firm's Richmond, Calif., plant. --Tracerlab, Inc., Waltham 54, Mass.

PRODUCT NEWS:- Eccoshield L is trade-name of Emerson & Cuming, Inc., Canton, Mass., for this manufacturer's series of high radiation resistant epoxide resins loaded with lead for nuclear shielding purposes. They are available as rod and sheet stock and as casting resins. Eccoshield I and B are similar to the type L; type I contains a high percentage of iron in a radiation resistant epoxide; type B is high in boron content making it useful in applications involving thermal neutrons.

Radiation absorbing glasses of larger dimensions than have been available in Europe are now being offered by Chance-Pilkington Optical Works, St. Asaph, North Wales. This U.K. firm is now manufacturing glasses of density 2.5 g. per cc. and 4.3 g. per cc. in polished plate form as well as in block form up to 4-ft. 6-in. by 3-ft., in 10-in. thicknesses, with a limit of 2,000-lbs. for any single block.

Geophysical instrument for detecting and measuring beryllium, trade-named Beryllometer, is said to be first such portable instrument of its kind. It is produced and sold by Nuclear Enterprises, Ltd., 1750 Pembina Highway, Winnipeg, Manitoba, Canada. An activation principle using a radioactive source is utilized.

MANUFACTURERS' NEWS:- Production and delivery of 120 nuclear fuel elements for four research reactors has been completed by Sylvania-Corning Nuclear Corp., Bayside, New York. Forty elements were shipped to Industrial Reactor Laboratories, Plainsboro, N.J. Thirty elements of a similar type (18-plate swimming pool type) were delivered to the swimming-pool type research reactor of Curtiss-Wright Corp's research division at Quehanna, Pa., which started operations in April, 1958. Fifty elements were delivered to Brookhaven National Laboratory for the medical research reactor and the neutron source reactor there. (Sylvania-Corning operates two production facilities in Hicksville; one plant produces commercial-type elements, while the other makes special elements and reactor materials for the Government.)

Production of "limited quantities" of nuclear-grade beryllium by Imperial Smelting Co., Avonmouth, England, using a new thermal reduction process, is expected to be underway before the end of this year. Imperial Smelting, the U.K. operating subsidiary of Consolidated Zinc Corp., developed the thermal reduction process under contract with U. K. Atomic Energy Authority. Beryllium produced by Imperial Smelting will be used for canning nuclear fuel for the Authority's high-temperature reactors in an operating range of 600 deg. C. This first stage of production at Avonmouth for the production of limited quantities will be followed by a second stage (which involves considerable expansion) if British demand increases for beryllium of this purity, in connection with the Authority's advanced gas-cooled reactor.

New continuous process for production of uranium dioxide developed by Spencer Chemical Co., will be used in Spencer's new 100,000 pound-per-year uranium dioxide plant the company now will build at its Jayhawk Works, near Pittsburg, Kansas. Using uranium hexafluoride, bought from the USAEC, as starting material, Spencer will make uranium dioxide of any enrichment, according to vice president Harold Dinges.

Tune-up operations have started at the thorium recovery plant of Rio Tinto Dow, Ltd., adjacent Algom Uranium Mines' Quirke treatment plant in the Elliot Lake area, Northern Ontario. Using the treatment plant's liquid waste products as feed, the \$1,000,000 thorium plant is the first of its kind to use such uranium milling wastes and the sole producer of thorium compounds from Canadian sources. Initial production will be in the form of crude thorium cake, essentially a calcined thorium oxide.

ATOMIC ENERGY FINANCIAL NEWS...

STOCK OFFERING BY INSTRUMENT MANUFACTURER:- Victoreen Instrument Co., Cleveland, manufacturer of industrial instrumentation, including a full line of radiation detection and measurement instruments, intends to offer some 248,394 shares of capital stock, and has filed registration statement with the Securities & Exchange Commission. The shares would be offered to holders of its common stock and debentures. Of the proceeds, \$275,000 would be used in connection with the recently acquired Kolus Corp., and \$125,000 for further expansion of Tullamore Electronics Corp. Balance would be for other corporate purposes.

METALS PRODUCER SHOWS LOWER NET FOR THE YEAR:- Beryllium Corp. had sales for 1958 of \$14,779,535, off from \$16,161,524 shown a year ago. Walter R. Lowry, president, said in his annual report that the startup of a new plant at Hazelton, Pa., and the cutback of beryllium metal buying by the USAEC were two major problems confronting the company in 1958. The Commission originally had contracted to buy 100,000-lbs. of beryllium metal a year for five years from the company but later had cut this back to 37,500-lbs. a year for five years. A substantial termination payment in connection with this contract was received by the company in January, 1959; the company applied this to offset the carrying value of the new plant on its balance sheet. (In its year end balance sheet Beryllium carried under accounts receivable a \$2,127,435 item labeled "principally U. S. Government contract termination".)

URANIUM MINING FIRM INCREASES EARNINGS:- Net profit of \$9,334,198 was earned during 1958 by Algom Uranium Mines, Canadian uranium mining and milling firm. This compares with \$6,765,644 earned the previous year by the company. Although a cut back in the company's delivery rate to 340,000-lbs. uranium oxide per month went into effect July 1, 1958, Algom produced 470,000-lbs. more in 1958 than in 1957, while tonnages treated were about equal. At Dec. 31, 1958 ore reserves at the company's Quirke and Nordic properties were estimated at 27½ million tons. Algom is one of the Rio Tinto of Canada companies.

HEAVY EQUIPMENT MANUFACTURER HAS BETTER EARNINGS:- Foster Wheeler Corp., had net income in 1958 of \$2,662,820, compared with net loss of \$823,874 in 1957. Billings in 1958 were \$178,947,305 as against \$173,181,534 for 1957. The company's English subsidiary had earnings last year of about \$1.5 million. Both in U. S. and abroad, Foster Wheeler has been active in the field of atomic energy, supplying major nuclear power plant equipment. Its British subsidiary has joined with Rolls-Royce, Ltd., and Vickers, Ltd. to form Rolls Royce Associates for development of nuclear power for submarines and eventually for ships, aircraft, and other mobile applications.

RAW MATERIALS...prospecting, mining, marketing...

MILL CONTRACT AMENDED AND EXTENDED:- Amended uranium concentrate purchase contract has been signed by USAEC with Western Nuclear Corp., Rawlins, Wyoming. The contract provides for increasing the capacity of Western Nuclear's processing mill at Split Rock, Wyoming, and extends USAEC's purchase agreement with Western to December 31, 1966. Rated capacity of the mill will go from 400 tons per day to 845 tons per day under the new contract.

URANIUM CONCENTRATE PRODUCTION AT RECORD HIGH IN U.S.:- Uranium output continued its gradual climb in the U.S. with uranium ore receipts at all private U.S. plants and Government purchase depots rising from 444,000 dry short tons in July, 1958 to 521,000 tons in December, 1958; total for this July-Dec. period was 2,807,000 dry short tons. Uranium concentrates received at the Commission's depot in Grand Junction totaled 6,651 tons of uranium oxide for last half of 1958; a gradual increase occurred from 974 tons in July, 1958 to 1251 tons in December 1958. Average Government buying price was \$9.33/lb., or approximately \$124,000,000. On January, 1959, there were 23 uranium processing mills in operation in the U. S., with combined daily capacity of 21,065 tons of ore per day. Measured, indicated and inferred uranium ore reserves in the U. S. were estimated at 82,500,000 tons on Jan. 1, 1959; this is only material metallurgically amenable to treatment.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

March 17, 1959